

Appln No. 09/539,197
Amdt date January 20, 2004
Reply to Office action of November 20, 2003

REMARKS/ARGUMENTS

Claims 1-54 are currently pending in this application. Claims 1, 6, 7, 9, 13, 16, 18, 24, 33, 36, 37, 39-44 are amended. Claim 9 is rejected under 35 U.S.C § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicants regard as the invention. In view of the amendment to claim 9, it is respectfully requested that the above-mentioned rejections be withdrawn.

Claims 7-8 and 24-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form and include all of the limitations of the respective independent claims. Claims 7 and 24 are rewritten in independent form and include all of the limitations of the independent claims 1 and 18, respectively. However, the rewritten independent claim 7 does not include the limitation of dependent claim 6 from which the original claim 7 was dependent and the rewritten independent claim 24 does not include the limitation of dependent claim 22 from which the original claim 24 was dependent. Nevertheless, the rewritten (now) independent claims 7 and 24 include the limitations of "if registers are unstable, saving the value of any registers that change after each pipeline cycle;" and "if the breakpoint location is set on a location that uses old values of registers, saving the old values of the registers before new values are written to the registers," which are not disclosed or suggested by Rosenberg. Therefore allowance of rewritten independent claims 7 and 24 and

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their respective dependent claim 8 and 25 is respectfully requested.

Claims 1-3, 5, 10, 13-15, 18-19, 21-22, 27, 33-35, 39-40, 42-43, 45-46, 48-49, and 51-54 are rejected under 35 U.S.C. 102(b) as being anticipated by J. B. Rosenberg, "How debuggers Work: Algorithms, Data Structures, and Architecture," ("Rosenberg").

Amended independent claims 1, 16, 18, 36, 39, 41, 42 and 44, include among other limitations "executing one or more no-op instructions to flush the pipeline, if there is data in the pipeline that needs to be saved."

Rosenberg does not disclose the above limitation. Therefore, independent claims 1, 16, 18, 36, 39, 41, 42 and 44 are not anticipated by Rosenberg.

Amended independent claims 13, 33, 40 and 43, include among other limitations "setting a breakpoint at a last safe point location in an instruction set in the pipeline behind a first breakpoint location if the first breakpoint location is at an unsafe location in the pipeline." Rosenberg does not disclose the above limitation. The cited text in Rosenberg (page 115) disclose setting "internal breakpoints and run to the next breakpoint to simulate the single-step functionality." (Page 115, middle of third paragraph). "if the debugger detects the next instruction as a branch instruction it must decode the target of the branch and set a breakpoint there to correctly 'single step' over the branch instruction." (Id., emphasis

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added). Therefore, the debugger of Rosenberg detects the branches within an instruction set and sets the next breakpoint in the target of the branch, rather than the next instruction after the branch instruction. As a result Rosenberg does not describe "setting a breakpoint at a last safe point location in an instruction set in the pipeline behind a first breakpoint location if the first breakpoint location is at an unsafe location in the pipeline," as required by the amended independent claims 13, 33, 40 and 43. Consequently, independent claims 13, 33, 40 and 43 are not anticipated by Rosenberg.

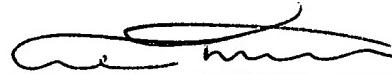
In short, the independent claims 1, 13, 16, 18, 33, 36, 39, 40, 41, 42, 43 and 44, define a novel and unobvious invention over the cited references. Remaining dependent claims are dependent from claims 1, 13, 16, 18, 33, 36, 39, 40, 42, and 43 respectively and therefore include all the limitations of their respective independent claims and additional limitations therein. Accordingly, these claims are also allowable over the cited references, as being dependent from allowable independent claims and for the additional limitations they include therein.

In view of the foregoing amendments and remarks, it is respectfully submitted that this application is now in condition

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for allowance, and accordingly, reconsideration and allowance
are respectfully requested.

Respectfully submitted,
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